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ANALYSIS OF FACTORS RELATED TO BREAST ABSCESS: A PROSPECTIVE POPULATION - BASED OBSERVATIONAL STUDY

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INTRODUCTION:

Breast abscess is defined as localized collection of pus under the skin in breast tissue[1]. Infection of the breast may occur as a localized phenomenon or as part of systemic illness. The common acute infective conditions are usually easy to diagnose. The importance of rarer infection of breast lies in the similarity of their presentation to carcinoma, a painless indurated mass. There are a number of infective conditions which are now uncommon but are of historical interest. Tuberculosis remains important with respect to immunocompromised patients and Indian subcontinent. Except during the post-partum period, infections of the breast are rare and are classified as intrinsic (secondary to abnormality in the breast) or extrinsic (secondary to an infection in an adjacent structure e.g. skin, thoracic cavity).[2] Studies based on hospital experiences likely to give a distorted picture of the true incidence of breast infection. In hospital practice, non-puerperal abscess is more common than lactational abscess,[3, and 4] but in general practice approximately 80% of infective episodes were puerperal.

MATERIALS AND METHODS:

All the patients were initially examined in the outpatient department and were admitted. A detailed history comprising of age, date of birth of baby, presenting complaints of swelling in breast, pain, fever, any discharge, breast feeding practices were taken. A careful past history regarding previous similar complaints, previous operation on breast were recorded. Associated diseases if any, were noted too. After complete general examination, a careful local examination of breast done for any signs of inflammation, tenderness, induration, fluctuation and ulceration over swelling. Amount, color and quantity of any discharge is also noted. All the patients were investigated for hemoglobin percentage and total leucocytes counts. Blood sugar levels, renal function test, reactivity for HIV, chest X-ray, ultrasonography of breast was done. Throat swab for culture and sensitivity of babies on breast feeding were taken in patients having lactational breast abscess. A final diagnosis was made correlating the clinical features and ultrasonography and further operative or conservative management is decided for the patient. Patient is informed about the treatment plan and due consent is taken before operation. All operative patients were operated under general anesthesia. Postoperatively all patients were managed with iv fluids, antibiotics and analgesics. Milk suppression was advised for some patients. Post-operative complications were noted and managed accordingly. Duration of hospital stay was noted and compared between milk suppressed and non-milk suppressed patients by using Student's 't' test. While discharging patients were given discharge card and were asked to come for follow up after 1 week. The patients were interviewed and examined in the first follow up and findings noted.

OBSERVATIONS AND RESULTS:

Table 1: Table Showing Age Distribution of Patients with Breast Abscess

Age in years	No. of patients		Total
	Lactating	Non-lactating	
18-20	11 (18.33%)	0 (0%)	11 (18.33%)
21-30	31 (51.67%)	8 (13.33%)	39 (65%)
31-40	1 (1.67%)	3 (5%)	4 (6.67%)
41-50	0 (0%)	5 (8.33%)	5 (8.33%)
51-60	0 (0%)	1 (1.67%)	1 (1.67%)
Total	43 (71.66%)	17 (28.33%)	60 (100.00%)

The age distribution of patients with breast abscess in the study group shows that most of the patients (65%) were between 21-30 years. Of those 51.67% patients were lactating while 13.33% were non-lactating. The mean age was found to be 26.7 years with standard deviation of 8.63 years.

Table 2: Side Affected

Side	No. of patients	Percentage
Right	38	63.33
Left	19	31.67
Bilateral	3	5
Total	60	100

The study showed in 63.33% patients right breast was affected, in 31.67% left breast was affected and in 5% both breasts were affected.

Table 3: Parity of Patients in Lactational Breast Abscesses

Parity	No. of patients	Percentage (%)
Primipara	31	72.09
Multipara	12	27.91
Total	43	100

The study showed Primipara being affected more than multipara. Almost 72.09% patients were Primipara.

Table 4: Mode of Delivery

Mode of delivery	No. of patients	Percentage (%)
Vaginal delivery	33	76.04
LSCS	10	23.96
Total	43	100

In the study, out of 43 lactating patients 76.04% patients had vaginal delivery while 23.96% patents underwent caesarean section.

Table 5: Time Interval Between Delivery and Onset of Symptoms

Time Interval	No. of Patients	Percentage (%)
1st week	3	6.97
2nd week	4	9.3
3rd week	7	16.27
4th week	10	23.25
5th week	8	18.60
6th week	0	0
7th week	3	6.97
8th week	4	9.3
> 2 Months	4	9.28
Total	43	100

In the study group 43 patients were lactating. The study showed highest number of patients in 4th week after delivery i.e. 23.25%. 55.8% cases occurred before the end of 4th week i.e. within 1 month. 44.2% cases occurred after the end of 4th week.

Table 6: Mode of Delivery and Mean Time Interval Between Delivery and Breast Abscess

Mode of delivery	No. of patients	Mean time interval between delivery and breast abscess (weeks)
Vaginal	33	4.63
LSCS	10	6.7
P value= 0.115		not significant

In the study, mean time interval between delivery and onset of breast abscess in patients delivered vaginally was 4.63 weeks and in patients delivered by cesarean section was 6.7 weeks.

Table 7: Symptoms

Symptom	No. of Patients	Percentage (%)
Swelling (induration)	59	98.33
Pain	56	93.33
Fever	48	80.00
Discharge (pus)	8	13.33

The study showed swelling as the most common complaint in patients affecting as much as 98.33% of total, followed by pain (93.33%), fever (80%), discharge (13.33%).

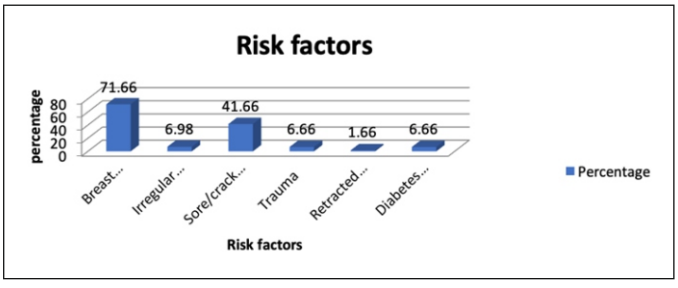
Table 8: Signs

Signs	No. of patients	Percentage (%)
Rubor	59	98.38
Color	53	89.97
Dolor	56	93.33
Tumor	59	98.38
Fluctuation	33	55.00

The study showed signs of inflammation present in almost all patients. Rubor was present in 98.38%, tumor in 98.38%, dolor in 93.33% and color in 89.97% of patients. Fluctuation being late sign was present in 55% of patients only.

Table 9: Risk Factors

Risk factor	No. of patients	Percentage (%)
Breast feeding	43	71.66
Irregular breast feeding	3	6.98
Sore/cracked nipple	25	41.66
Trauma	4	6.66
Retracted nipple	1	1.66
Diabetes mellitus	4	6.66



In the study, 71.66% patients were lactating, out of those 6.98% patients had history of irregular breast feeding. 41.66% patients had sore/cracked nipples, 6.66% had trauma to affected breast, 1.66% had retracted nipples and 6.66% were diabetic.

Table 10: Breast Feeding

Breast feeding	No. of patients	Percentage (%)
Yes	43	71.66
No	17	28.33
Total	60	100

In the study group 43 patients (71.66%) were lactating.

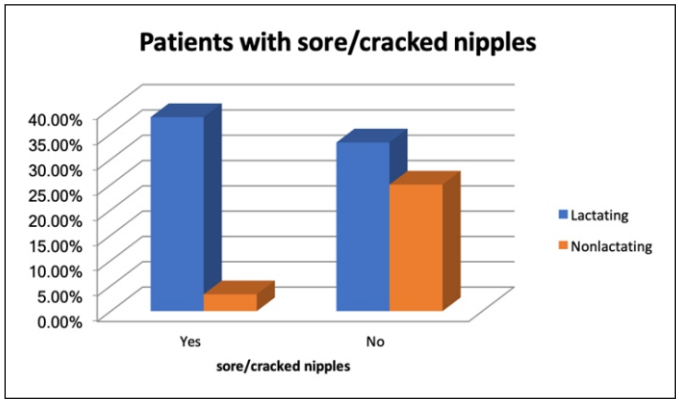
Table 11: Patients With History of Irregular Breast Feeding

Irregular breast feeding	No. of Patients	Percentage (%)
Yes	3	6.98
No	40	93.02
Total	43	100.00

In the study, out of 43 lactating patients only 6.98 % patients had history of irregular breast feeding.

Table 12: Number of Patients with Sore / Cracked Nipples

Sore / cracked nipples	No. of Patients		Percentage (%)
	Lactating	Nonlactating	
Yes	23 (38.33%)	2 (3.33%)	41.66
No	20 (33.33%)	15 (25%)	58.34
Total	43 (71.66%)	17 (28.33%)	100



In the study 25 patients (41.66%) had sore/ cracked nipples. Out of which 23 patients (38.33%) were lactating and 2 patients (3.33%) were non-lactating.

Table 13: No of Patients with History of Trauma to Breast

History of Trauma	No. of patients	Percentage (%)
Yes	4	6.66
No	56	93.34
Total	60	100

In the study 6.67% patients had history of trauma to the affected breast.

Table 14: No. of Patients with Retracted Nipple

Retracted Nipple	No. of patients	Percentage (%)
Yes	1	1.66
No	59	98.34
Total	60	100

In the study only 1 patient (1.66%) had history of retracted nipples.

Table 15: Diabetes Mellitus in Patients

	No. of patients		Total
	Lactating	Non-lactating	
Diabetic	0 (0%)	4 (6.67%)	4 (6.67%)
Non diabetic	43 (71.67%)	13 (21.67%)	56 (93.34%)
Total	43 (71.67%)	17 (28.34%)	60 (100%)

In the study, 6.67% patients were diabetic and all of them were non-lactating.

Table 16: Treatment

Treatment	No. of patients	Percentage (%)
Conservative	5	8.33
Operative	55	91.67
Total	60	100

In the current study, 91.67% patients were treated operatively & of them 66.67% patients were lactating and 25% patients were non-lactating, while 8.33% patients were treated conservatively out of these 5% patients were lactating and 3.33% patients were non-lactating.

Table 17: Treatment Given to Lactational Braest Abscesses

Treatment	Number of patients	Percentage (%)
Operative	40	93.02
Conservative	3	6.97
Total	43	100

In the study, 93.02% patients were treated operatively.

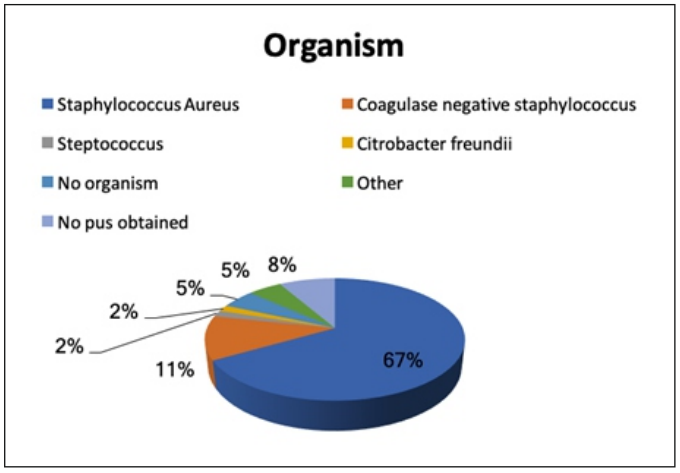
Table 18: Milk Suppression

Milk suppression	No. of patients	Percentage (%)
Yes	10	23.25
No	33	76.75
Total	43	100

In the study milk suppression was advised to all lactating patients post operatively but some of them refused. In only 23.25% patients pharmacological milk suppression was done.

Table 19: Causative Organisms

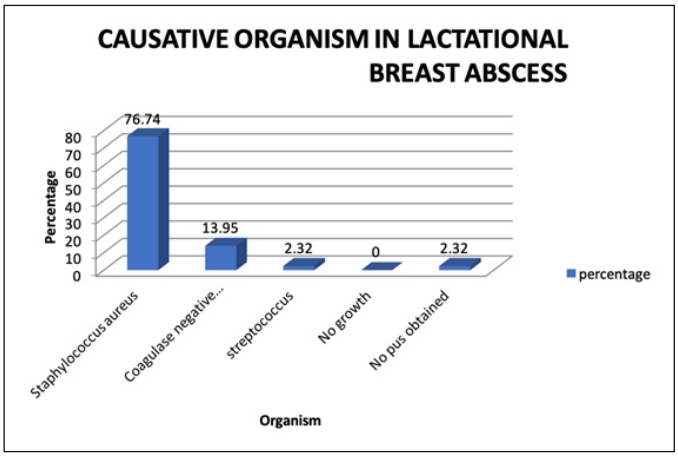
Organism	No. of patients	Percentage (%)
Staphylococcus Aureus	40	66.67
Coagulase negative staphylococcus	7	11.66
Streptococcus	1	1.67
Citrobacter freundii	1	1.67
No organism	3	5
Other	3	5
No pus obtained	5	8.33
Total	60	100



The organism most commonly found in breast abscess in the study was Staphylococcus aureus (66.67%). 7 cases (11.66%) grew coagulase negative Staphylococcus, one grew streptococcus, another one grew Citrobacter freundii. 3 cases showed no growth on culture. From 5 patients (8.33%) pus was not obtained. Other included 3 patients of which 1 had non-Hodgkin's lymphoma, 1 had duct ectasia another one had antibioma.

Table 20: Causative Organism in Lactational Breast Abscess

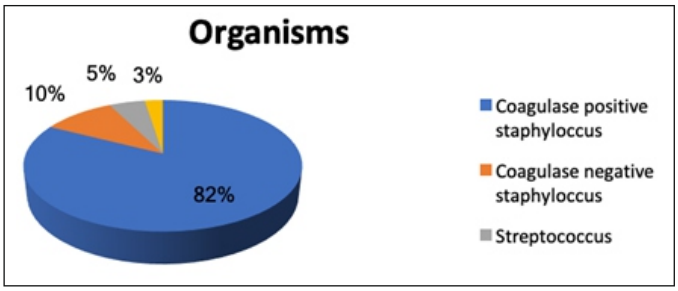
Organism	Number of patients	Percentage (%)
Staphylococcus aureus	33	76.74
Coagulase negative staphylococcus	6	13.95
streptococcus	1	2.32
No growth	0	0
No sample obtained	3	2.32
Total	43	100



In the study, Staphylococcus aureus was isolated from 76.74% patients while coagulase negative staphylococcus was present in 13.95% and streptococcus in 2.32% of lactational breast abscesses. In 2.32% patients, no sample was obtained for investigation.

Table 21: Baby's Oral Swab Organisms

Organism	No. of babies	Percentage (%)
Coagulase positive staphylococcus	33	82.5
Coagulase negative staphylococcus	4	10
Streptococcus	2	5
No organism	1	2.5
Total	40	100



In the study, out of 40 oral swabs from babies of patients of lactational breast abscess showed most common organism found to be coagulase positive staphylococcus (76.67%).

Table 22: Table Showing Co-relation Between Organisms from Breast Abscess and From Baby's Oral Cavity in Lactational Breast Abscess Patients

Organism	No of pus culture	No of baby's oral swab culture
Coagulase positive staphylococcus	33	33
Coagulase negative staphylococcus	6	4
Streptococcus	1	2
No growth	0	1
Total	40	40

In the study, out of 43 lactating patients 40 patients were treated operatively. In the study, out of the 33 oral swabs cultures showing coagulase positive staphylococcus, 32 swabs cultures had same organism as in pus from breast abscess i.e. 96.97% baby's oral cavity swab culture showed same organism as present in breast abscess.

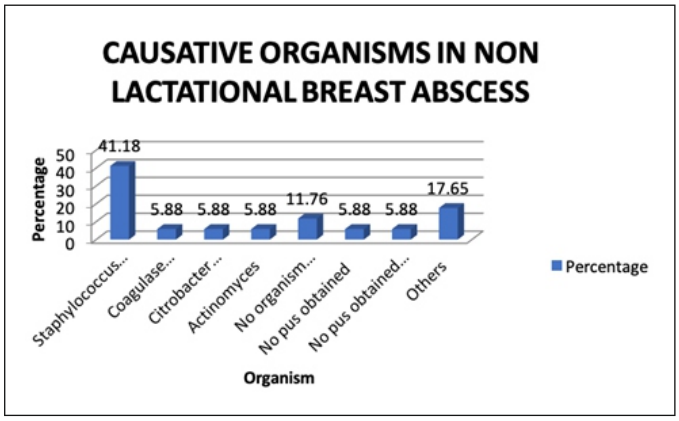
Table 23: Treatment Given to Non Lactational Breast Abscesses

Treatment	Number of patients	Percentage (%)
Operative	15	88.23
Conservative	2	11.77
Total	17	100

In the study, out of 17 patients of non - lactational breast abscesses 88.23% were treated operatively.

Table 24: Causative Organisms in Non Lactational Breast Abscess

Organism	No of patients	Percentage (%)
Staphylococcus aureus	7	41.18
Coagulase negative staphylococcus	1	5.88
Citrobacter freundii	1	5.88
Actinomyces	1	5.88
No organism grown	2	11.76
No sample obtained	1	5.88
No sample obtained / FNAC s/o TB	1	5.88
Others	3	17.65
Total	17	100



In the study, Staphylococcus aureus was isolated from 41.18% patients of non lactational breast abscesses. 5.88% patients had coagulase negative staphylococcus, while another 5.88% had Citrobacter freundii. 11.76% patients showed no growth on culture. 1 patient showed actinomyces on histopathological examination. From 2 patient's pus sample was not obtained out of them one on FNAC showed caseating tuberculosis. Others included one patient of non-Hodgkin's lymphoma, one of duct ectasia and one of antibioma.

Table 25: Conditions Associated with Non Lactational Breast Abscesses

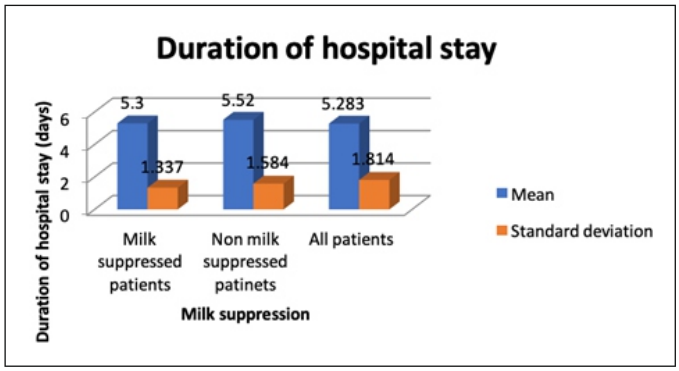
Condition	Number of patients	Percentage (%)
Diabetes mellitus	4	23.52
Duct ectasia	1	5.88
Malignancy	1	5.88
HIV	3	17.64
Infections		
Tuberculosis	1	5.88
Actinomycosis	1	5.88
Partially treated chronic breast abscess (antibioma)	1	5.88
Trauma	3	17.64
Not associated with any conditions	2	11.76
Total	17	100

In the study, out of 17 non lactational breast abscess patients 88.24% were associated with some medical conditions. 23.52% were diabetic, 17.64% were HIV positive. 17.64% had history of trauma to affected breast. One patient had non-Hodgkin's lymphoma while another one had duct ectasia. Another one had partially treated chronic breast abscess. Two patients had uncommon infections of breasts, one had tuberculosis while second patient had actinomycosis.

Table 26: Duration of Hospital Stay

	Duration of hospital stay (days)	
	Mean	Standard deviation
Milk suppressed patients	5.30	1.337
Non-milk suppressed patients	5.52	1.584
All patients	5.283	1.814

P value: 0.699 -- NOT SIGNIFICANT



In the study, mean duration of hospital stay in milk suppressed patients was 5.3 days with a standard deviation of 1.337 while mean duration of hospital stay in non-milk suppressed patients was 5.52 days with a standard deviation of 1.584. There was no significant difference in the duration of hospital stay between milk suppressed patients and non-milk suppressed patients (p value= 0.699).

Table 27: Post Opaerative Complications

Post-operative complications	Number of patients	Percentage (%)
Present	0	0
Absent	60	100
Total	60	100

In the study, none of the patients had post-operative complications and all the patients recovered uneventfully.

DISCUSSION:

In the present study, 60 cases of breast abscess admitted to our hospital were studied. Presently available literature on breast abscess was reviewed. After detailed history, clinical examination and relevant investigations and treatment following observations were made.

Age Incidence

Age in years	No. of patients		Total
	Lactating	Non-lactating	
18-20	11 (18.33%)	0 (0%)	11 (18.33%)
21-30	31 (51.67%)	8 (13.33%)	39 (65%)
31-40	1 (1.67%)	3 (5%)	4 (6.67%)
41-50	0 (0%)	5 (8.33%)	5 (8.33%)
51-60	0 (0%)	1 (1.67%)	1 (1.67%)
Total	43 (71.66%)	17 (28.33%)	60 (100.00%)

In the present study majority of the patients are in the age group 21-30 years (65%) out of these 51.67% were lactating and 13.33% were non-lactating while according to Oluwole et al [5] most common age group was of 21-30 years (52.2%) similar to present study. In the present study mean age of occurrence of breast abscess is 26.7 years while Dener et al[6] found mean age for breast abscess as 26 years which is similar to the present study. As 21-30 years is most fertile age group and breast abscess commonly is a disease of lactating mothers hence most common age group for breast abscess is also 21-30 years of age.

SIDE AFFECTED:

In the study, 63.33% patients had breast abscess on right side while in 31.66% patients left side was affected and in 5% cases both breasts were involved which is similar to results reported by Dener et al[6] in which 65% cases had right breast affected while 35% had left breast.

Newnham et al[1] reported in their study that 61.7% patients had right breast abscess while 38.3% had left breast abscess.

PARITY:

In the present study, 72.1% were primipara and 27.9% were multipara. McIntosh [7] reported that 59.2% patients were primipara also Moon et al [8] reported 75% were primipara. Fulton [9] reported 59% of patients were primipara. Primipara mothers are not properly trained or lack experience of breast feeding as in multipara. So, they are at high risk of having sore nipples which again increases the chance of developing mastitis and breast abscess.

MODE OF DELIVERY:

In the study, out of 43 lactating patients 76.04% patients had vaginal delivery while 23.96% patents underwent caesarean section.

TIME INTERVAL BETWEEN DELIVERY AND ONSET OF SYMPTOMS:

In the present study, highest number of patients (23.25%) occurred in 4th week after delivery. 55.8% cases occurred before the end of 4th week i.e. within 1 month. 44.2% cases occurred after the end of 4th week which is similar to study done by Fulton[9] which showed 55% cases occurred before the end of 4th week and 45% cases after the end of 4th week. Fulton[9] study showed highest number of patients in 3rd week after delivery. Deveraux [10] showed greatest number of patients occurring in 2nd and 3rd week after delivery. Highest number of patients in his study were in 2nd week which was 27.58%, while 63.79% patients occurred within 4 weeks. Study done by Monro et al [11] showed 69.7% patients occurring between 2nd and 4th week. Study by I-Wen Lee et al [12] showed highest number of patients occurring in 2nd month which was 41.9%. In their study > 90% patients occurred during first 3 months. Most of the patients of lactational breast abscess present within 2 months after delivery as many mothers are not well educated about "breaking suction" [13] while breast feeding and because of it patients develop sore nipples which is a risk factor for breast abscess.

MODE OF DELIVERY AND MEAN TIME INTERVAL BETWEEN DELIVERY AND BREAST ABSCESS:

In the study, mean time interval between delivery and onset of breast abscess in patients delivered vaginally was 4.63 weeks and in patients delivered by caesarean section was 6.7 weeks. There is no significance between mode of delivery and time interval between delivery and breast abscess. **(P value=0.115).** Patients delivered by caesarean section tend to breast fed their babies late as compared to patients delivered vaginally. May be because of post-operative pain patients with caesarean section done feed their babies late.

SYMPTOMS AND SIGNS:

In the study, almost all i.e. 98.33% patients came with a complaint of swelling. 93.33 % patients had pain, 80% patients had fever and 13.33% patients had discharge. Study done by Bertrand et al [14] showed pain in 99% of patients, fever in 94%, induration in 82% patients and discharge in 38% patients. As breast abscess is suppurative inflammation of the breast, patients develop symptoms due to body's response to inflammatory process. Hence most patients come with complaints of swelling (induration), pain or fever. In the study, Rubor present in 98.38% patients, color in 89.97%, dolor in 93.33% and tumor in 98.38% of patients. fluctuation being late sign in breast abscess is present in 55% of patients. As breast abscess is suppurative inflammation, patients showed all signs of inflammation. Fluctuation is late in breast abscess so occurring in relatively less number of patients.

RISK FACTORS:

The present study showed breast feeding as the most common risk factor for development of breast abscess present in 71.66% of patients followed by sore / cracked nipples (41.66%), trauma (6.66%), diabetes mellitus (6.66%) and retracted nipple (1.66%). Out of 71.66% lactating mothers 6.98% had history of irregular breast feeding. Breast feeding is the most common risk factor for breast abscess as breast milk provides excellent medium for growth of pathogens also most common route for transfer of bacteria is sore/cracked nipples. As sore/cracked nipples are causes pain during lactation, many mothers tend to skip breast feeding from same side which results in incomplete emptying, breast engorgement, mastitis and abscess. Retracted nipples and irregular breast feeding both eventually lead to incomplete emptying and engorgement. All patients with diabetes mellitus were non-lactating.

RISK FACTORS - BREAST FEEDING:

In the study 71.66% patients were lactating while 28.33% patients were non-lactating at the time of presentation. Oluwole et al[5] showed in their study that 78.3% patients were lactating while 21.7% patients were non-lactating. O'Hara RJ et al[15] showed in their study that 32 % patients of breast abscess were lactating. Bates et al [16] found 24 % of the patients were lactating at the time of onset of symptoms while Scholefield et al[3] found only 3% of patients of breast abscess were lactating at the time of presentation. Lactation is the most common risk factor for breast abscess as breast milk is excellent medium for growth of microorganisms and also sore/cracked nipples facilitate entry of pathogens from baby's oral cavity during breast feeding.

RISK FACTORS - IRREGULAR BREAST FEEDING:

In the study only 6.98% patients had history of irregular breast feeding while 93.02% patients breast fed their babies regularly. Illingworth et al[17] demonstrated in a controlled trial that the incidence of engorgement was halved if babies were given unrestricted access to the breast. Irregular breast feeding is responsible for incomplete emptying of breasts which is a predisposing factor for breast abscess. It is also observed that when breastfeeding times were scheduled, engorgement, often followed by mastitis and lactation failure, was more common[18]

RISK FACTORS - SORE / CRACKED NIPPLES:

In the current study 41.66% patients had sore / cracked nipples which is similar to results shown by H Bertrand et al [14] in which 42% patients had sore / cracked nipples. Leary et al [18] in their study observed 64% of patients with sore / cracked nipples. Monro et al [11] found that in 48.27% patients breast abscess developed after cracked nipple. Sore or cracked nipple is a site of entry for microorganisms from oral cavity of babies during breast feeding. And sore and cracked nipple harbors more microorganisms. Also, as sore nipple is painful and tender, mothers tend to skip breast feeding from same side which again results in incomplete emptying, milk stasis and engorgement of breast.

RISK FACTORS - TRAUMA:

In the present study, 6.66% patients had history of trauma to affected breast. Trauma to breast from any cause can cause damage gland tissue and ducts and this could lead to mastitis and breast abscess.

RISK FACTORS - RETRACTED NIPPLE:

In the present study, one patient (1.66%) had retracted nipple. Retracted nipple is responsible for poor latch on to breast during feeding. Poor latch on is a cause of inefficient milk emptying from breasts which in turn results in milk stasis and engorgement. Retracted nipple also causes improper hygiene of the nipple areola complex which may lead to local infection. Retracted nipple causes the baby to suck vigorously causing more trauma.

RISK FACTORS - DIABETES MELLITUS:

In the study 6.66% patients were diabetic. O'Hara et al [15] found 4% patients of breast abscess with diabetes mellitus. All the patients in the study were non-lactating thus indicating diabetes mellitus as risk factor for non-lactational breast abscess.

TREATMENT:

In the study, 5 patients (8.33%) were treated conservatively with antibiotic therapy only while 55 patients (91.67%) were treated operatively. Out of 55 surgically operated patients 40 patients (66.67%) were lactating and 15 patients (25%) were non-lactating. Out of 5 conservatively treated patients 3 patients (5%) were lactating while 2 patients (3.33%) were non-lactating. Out of 55 operated patients 52 patients underwent incision and drainage, while 3 patients clinically had chronic breast abscesses. So, all three underwent excision of tumor. Histopathological examination of one revealed it to be actinomycosis of breast, while another had duct ectasia. Third patient had antibioma. Bates et al [16] reported 72 cases of breast abscesses of which 68 patients (94.44%) were treated surgically. One patient (1.38%) underwent aspiration, another 2 abscesses (2.94%) discharged spontaneously while only 1 patient (1.38%) resolved with antibiotics alone.

MILK SUPRESSION:

In the study, milk suppression was advised to all lactating patients post operatively but some of them refused. In quarter of patients (23.25%) patients pharmacological milk suppression was done. In the past, suppression of lactation was often mentioned in the management of engorgement of breast and mastitis. Now maintenance of lactation is preferred and pharmacological methods of lactation suppression are no longer recommended.

CAUSATIVE ORGANISMS:

In the study, most common organism cultured from pus was Staphylococcus aureus, affecting 66.67%. Other organisms which were isolated included, Coagulase negative staphylococcus (11.66%), Streptococcus (1.67%), Citrobacter freundii (1.67%) and sterile culture was obtained in 5% patients. In 5 patients (8.33%) pus was not present. Other category included 3 patients of which one patient had non-Hodgkin's lymphoma, one had duct ectasia another one had antibioma. Monro et [all11] obtained coagulase positive staphylococcus from 96.87% patients. Also, Staphylococcus aureus was found in 73 % of a series by Moon et al [8] and in approximately 75% of Smith's series [58]. I-Wen Lee et al [12] found Staphylococcus aureus was the main pathogen in 63% of patients and coagulase negative staphylococcus was the second most common pathogen. Oluwole et al [5] observed that the organism most commonly found in breast abscess in their series was Staphylococcus aureus (82.6%) followed by 8.69% Staphylococcus albus and 4.3% grew Escherichia coli, 4.3% grew Pseudomonas aeruginosa and Proteus mirabilis. Bates et al [16] in their study found Staphylococcus aureus responsible for 76% of breast abscesses. Most common source of infection in breast abscess is baby's oral cavity from where microorganisms gain entry via nipple during breast feeding. As Staphylococcus aureus is most commonly present in oral cavity of babies, most common organism isolated from pus culture of breast abscess is also Staphylococcus aureus.

CAUSATIVE ORGANISM IN LACTATIONAL BREAST ABSCESS:

In the present study, Staphylococcus aureus was isolated from 76.74% patients while coagulase negative staphylococcus was present in 13.95% and streptococcus in 2.32% of lactational breast abscesses. In 2.32% patients, no sample was obtained for investigation. Most common causative agent for lactational breast abscess was Staphylococcus aureus followed by coagulase negative staphylococci.

ORAL SWAB CULTURE FROM BABY'S MOUTH:

In the study, most common organism isolated from oral cavities of babies on breast feeding is Staphylococcus aureus (82.5%). Other organisms isolated were coagulase negative staphylococcus 10%, streptococcus (5%) while 2.5% were sterile on culture. Monro et al [11] showed presence of coagulase positive staphylococcus in 81.82% of culture of baby's nasal swab.

CO-RELATION BETWEEN ORGANISMS FROM PUS AND FROM BABY'S ORAL CAVITY IN LACTATIONAL BREAST ABSCESS:

In our study, out of 43 lactating patients 40 patients were treated operatively. In the study, out of the 33 oral swabs cultures showing coagulase positive staphylococcus, 32 swabs cultures had same organism as in pus from breast abscess i.e. 96.97% baby's oral cavity swab culture showed same organism as present in breast abscess. Monro et al [11] showed that from all the swabs from infant's nose same microorganism was isolated as from breast abscess. Most common source of infection in breast abscess is baby's oral cavity from where pathogens gain entry via nipple during breast feeding. Hence most patients with lactational breast abscess show same microorganism as in baby's oral cavity.

CONDITIONS ASSOCIATED WITH NON LACTATIONAL BREAST ABSCESSES:

In the study, out of 17 non lactational breast abscess patients, 88.24% were associated with some medical conditions. 23.52% were diabetic, 17.64% were HIV positive. 17.64% had history of trauma to affected breast. One patient had non-Hodgkin's lymphoma while another one had duct ectasia. Another one had partially treated chronic breast abscess. Two patients had uncommon infections of breasts, one had tuberculosis while second patient had actinomycosis. It is evident from this study that non lactational breast abscesses are associated with some or other medical conditions. Fifteen out of 17 patients (88.23%) patients had presence of some medical condition in them.

MEAN DURATION OF STAY:

In the study mean duration of stay was 5.283 days. Bates et al [16] reported that mean length of stay for treatment of breast abscess was 6.5 days. It showed that mean duration of hospital - stay in milk suppressed patient was 5.3 days while, mean duration of hospital stay in non-milk suppressed patient's was 5.52 days. So, from this study it is evident that duration of hospital stay is not related to the milk suppression **(p value=0.699 – not significant)**. And milk suppression is not a factor in determining early discharge.

POST OPERATIVE COMPLICATIONS:

In the study, none of the patients had post-operative complications and all the patients recovered uneventfully.

CONCLUSION:

Breast abscess is most common in age group 21-30 years of age. Majority of patients are Primipara and commonly right side is affected more than left. Most common etiological factor responsible for breast abscess is lactation followed by sore/cracked nipple and trauma. Diabetes mellitus is responsible for non-lactational breast abscess. Majority of patients with lactational breast abscess present within 2 first months after delivery.Most common causative organism for lactational breast abscess is Staphylococcus aureus. Second most common organism is coagulase negative staphylococcus, whereas non lactational breast abscess is caused by variety of organisms like Staphylococcus aureus, coagulase negative staphylococcus, actinomyces, tuberculosis etc. Most common organism isolated from oral cavity of babies of lactational breast abscess is Staphylococcus aureus. Almost all baby's oral cavity swab culture showed same organism as in respective mother's breast abscess which is Staphylococcus aureus. Non lactational breast abscesses most of the time are associated with some or other medical condition in patients. Mean duration of hospital stay does not vary upon milk suppression.

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